**WHAT IS CLAIMED IS:**

1. A method for transmitting OAM (Operation, Administration and Maintenance) packet data by a control multiplexer of an OAM sublayer in an Ethernet passive optical network (EPON), the OAM sublayer transmitting to a MAC (Medium Access Control) entity MAC client data transmitted from a MAC client and OAM packet data created in an OAM controller, the method comprising the steps of:

if OAM packet data is generated by the OAM controller, giving to the OAM packet data priority higher than that given to MAC client data that is in the MAC client and that is waiting to be transmitted; and

multiplexing the OAM packet data and the MAC client data according to the priority and transmitting the multiplexed data to the MAC entity.

2. The method of claim 1, wherein the priority giving step comprises the step of determining whether OAM packet data is generated by the OAM controller.

3. The method of claim 2, wherein the determining step is performed by a control multiplexer.

4 The method of claim 3, wherein the multiplexing step is performed by the control multiplexer.

5. The method of claim 2, wherein the determining step comprises the step of determining whether there presently exists in a queue said MAC client data that

is in the MAC client and that is waiting to be transmitted.

6. The method of claim 5, wherein the determining step is performed by a control multiplexer.

7. The method of claim 6, wherein the multiplexing step is performed by the control multiplexer.

8. The method of claim 7, wherein if the MAC client data is determined to not exist in said queue, the multiplexing step comprises the step of assigning priority to the data according to an order in which the data was generated.

9. The method of claim 5, wherein if the MAC client data is determined to not exist in said queue, the multiplexing step comprises the step of assigning priority to the data according to an order in which the data was generated.

10. An OAM (Operation, Administration and Maintenance) sublayer of an Ethernet passive optical network (EPON), the OAM sublayer being configured for transmitting to a MAC (Medium Access Control) entity MAC client data transmitted from a MAC client and OAM packet data created in an OAM controller, the OAM sublayer comprising a control multiplexer for giving, if OAM packet data is generated by the OAM controller, priority higher than that given to MAC client data that is in the MAC client and that is waiting to be transmitted, and transmitting the OAM packet data to the MAC entity in advance of the MAC client data.

11. The OAM sublayer of claim 10, wherein the control multiplexer is configured for determining whether OAM packet data is generated by the OAM controller.

12. The OAM sublayer of claim 10, wherein the control multiplexer is configured to multiplex MAC client data and OAM packet data.

13. The OAM sublayer of claim 11, wherein the control multiplexer is configured for determining whether there presently exists in a queue said MAC client data that is in the MAC client and that is waiting to be transmitted.

14. The OAM sublayer of claim 13, wherein the control multiplexer is configured to, if the MAC client data is determined to not exist in said queue, assign priority to the data according to an order in which the data was generated.

15. A computer program product having a computer-readable medium containing a computer program executable on a processor, said computer program comprising the OAM sublayer of claim 10, wherein the control multiplexer is implemented as instructions of said computer program that multiplex the OAM packet data and the MAC client data in accordance with said priority.

16. The computer program product of claim 15, wherein the control multiplexer is configured for determining whether OAM packet data is generated by the OAM controller.

17. The computer program product of claim 16, wherein the control multiplexer is configured to multiplex MAC client data and OAM packet data.

18. The computer program product of claim 17, wherein the control multiplexer is configured for determining whether there presently exists in a queue said MAC client data that is in the MAC client and that is waiting to be transmitted.

19. The computer program product of claim 16, wherein the control multiplexer is configured for determining whether there presently exists in a queue said MAC client data that is in the MAC client and that is waiting to be transmitted.

20. The computer program product of claim 15, wherein the control multiplexer is configured for determining whether there presently exists in a queue said MAC client data that is in the MAC client and that is waiting to be transmitted.